

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF MASSACHUSETTS**

SINGULAR COMPUTING LLC,

Plaintiff,

v.

GOOGLE LLC,

Defendant.

C.A. No. 1:19-cv-12551-FDS

Hon. F. Dennis Saylor IV

**DEFENDANT GOOGLE LLC'S REPLY IN SUPPORT OF ITS
MOTION FOR A CONTINUANCE OF THE TRIAL**

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I. INTRODUCTION

Singular dismissed its Federal Circuit cross-appeals after Google explained to this Court that those cross-appeals appeared poised to advance a claim construction position that was inconsistent with Singular’s district court infringement theory. Dkt. No. 391 at 9:6-11:6. That dismissal was a tacit concession that Singular’s claim construction positions before the Federal Circuit could directly impact the infringement theories Singular is advancing in this case.

Now, however, Singular has nevertheless advanced a similarly inconsistent claim construction position in its opposition to Google’s appeals. Singular tries to mask its inconsistency by arguing that it has advocated for a “plain and ordinary” construction of the claims in both this Court and the Federal Circuit, but Singular’s appellate briefing makes clear that Singular’s “plain and ordinary” understanding of the claims on appeal differs drastically from the understanding it is using to allege infringement in this Court. Singular wants to have the best of both worlds—a claim construction position at the Federal Circuit that (Singular thinks) saves its claims from invalidity, and a different (and inconsistent) claim construction position before this Court that (Singular thinks) allows it to cobble together an infringement theory. But the Federal Circuit has “repeatedly rejected efforts,” like Singular’s efforts here, “to twist claims, like a ‘nose of wax,’ in one way to avoid [invalidity] and another to find infringement.” *Data Engine Techs. LLC v. Google LLC*, 10 F. 4th 1375, 1381 (Fed. Cir. 2021).

A short continuance of the trial will ensure that the parties and the Court know whether the Federal Circuit adopts Singular’s appellate claim construction¹. Absent such a continuance, there is a very real potential that any September trial will need to be retried only weeks or months later

¹ It will also allow the parties and the Court to know whether the Federal Circuit will outright reverse the PTAB’s decision finding a handful of Singular’s claims patentable, mooted the need for a trial entirely.

using the claim construction that Singular is advancing on appeal but which is incompatible with its current infringement theories. Avoiding the wasted resources associated with such a retrial far outweighs any prejudice Singular could suffer from a short continuance.

II. SINGULAR’S OPPOSITION ARGUMENTS FAIL

A. **Despite Singular’s speculation to the contrary, any delay from a short continuance will be minimal and will not prejudice Singular.**

The parties agree that the Federal Circuit is likely to issue a decision regarding Google’s pending appeals by February 2024 at the latest. Dkt. No. 491 (“Opp.”) at 1. A continuance of the trial until the Federal Circuit issues its decision would thus likely delay trial by no more than a few months.

Singular argues that the parties would need six months to prepare for a new trial date and therefore if the Court waits until the Federal Circuit issues its decision then trial would likely be delayed until June 2024. Opp. at 2. But given the high likelihood that the Federal Circuit appeal will be resolved by February 2024 (if not sooner), there is no reason the Court could not at least tentatively re-schedule the trial for that month. Moreover, even if the Court were inclined to wait for the Federal Circuit to issue its decision before resetting the trial date, there is no reason the parties would need six months to prepare for trial given that summary judgment and *Daubert* briefing will have been completed and only pre-trial disclosures would remain.²

Singular also alleges that a continuance harms Dr. Bates because it would delay “bringing his invention to the public.” Opp. at 1. But he already disclosed his “invention” to the public years ago when his patents publicly issued and he has already spent years (unsuccessfully)

² Of course, should the Federal Circuit adopt Singular’s claim construction, then Google would seek leave to file an additional summary judgment motion that addresses that construction. That motion would likely moot the need for a trial, though briefing the motion may necessitate some additional delay in the trial date.

attempting to commercialize his “invention.” And despite Singular’s attempt to characterize this case as about more than money, Singular only seeks monetary relief.

B. Google never agreed that Singular could advance different claim constructions in parallel forums.

Singular says Google agreed to proceed with a September 2023 trial in parallel with the Federal Circuit appeal, implying that Google agreed to parallel proceedings regardless of whether Singular advanced inconsistent claim constructions in the two proceedings. Opp. at 2. But Google did no such thing. At the October 19, 2022, status conference, Google explained that it was comfortable moving forward with “expert discovery and other things,” but it was also explicit that “Singular shouldn’t be moving forward with a trial when they’re the ones who are in parallel advocating for a claim construction that is different than the one that exists before the Federal Circuit.” Dkt. No. 378 at 10:6-10. As of that status conference, no trial date had yet been set and Google identified Singular’s then-pending cross-appeals as a factor for the Court to consider when determining when to set a trial. *Id.* at 9:5-11:10.

The Court then held another status conference in December 2022 to discuss potential trial dates. Dkt. No. 398 at 3:13-16. Google again pointed to Singular’s then-pending cross-appeals and explained that “it does not make a lot of sense to schedule a trial before we know what the Federal Circuit is going to say about the claim construction.” *Id.* at 9:6-10:17. In response, Singular represented it would dismiss its cross-appeals, seemingly mooted Google’s concern. *Id.* at 10:19-11:6. Soon after the December 2022 status conference, the Court scheduled trial to begin on September 11, 2023. Dkt. No. 403.

Although Singular subsequently dropped its cross-appeals, it nonetheless filed its brief in opposition to Google’s appeals in which it advanced the inconsistent claim construction position central to this motion. Google promptly notified the Court that despite having dropped its cross-

appeals, Singular was still advancing a claim construction position on appeal that impacted the litigation, and Google requested a status conference to discuss the issue. Dkt. Nos. 404, 440. Such a conference was held on April 6, 2023, during which Google re-raised its concern about Singular's inconsistent positions and the Court invited Google to file this motion for a continuance. Dkt. No. 445 at 4:12-6:10, 14:5-13. Thus, at no point has Google "agreed" with conducting a trial in parallel with Singular advancing an inconsistent claim construction position on appeal.

C. Singular's argument before the Federal Circuit is new and provides Google with additional, dispositive non-infringement defenses.

Singular says it is not advancing a new claim construction position on appeal because it has argued for the "plain and ordinary" meaning of the phrase "adapted to execute at least the operation of multiplication on floating point numbers that are at least 32 bits wide" in both this Court and the Federal Circuit. Opp. at 3. But in reality, Singular is using the guise of "plain and ordinary" meaning to advance two different and incompatible constructions of the disputed phrase. *See O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1361-62 (Fed. Cir. 2008) (noting that where the parties dispute the "ordinary" meaning of a phrase, that raises a claim construction dispute).

As it now concedes, Singular is taking the position on appeal that an execution unit that is "adapted to execute at least the operation of multiplication on floating point numbers that are at least 32 bits wide"³ *includes* "variable-precision floating-point processors" like those in the prior-art Dockser reference. Opp. at 3. Although Singular says it is merely "responding to Google's novel claim construction argument," that is a distinction without difference. *Id.* (emphasis original).

³ Consistent with its opening brief, Google refers to such execution units as "32-bit FP multipliers." Dkt. No. 454 ("Opening Br.") at 3.

There is thus no dispute that Singular, on appeal, is arguing that the claimed 32-bit FP multiplier includes *any* execution unit adapted to perform multiplication on 32-bit floating-point numbers even if that same execution unit can also perform operations at lower precision. This is fatal to Singular’s current infringement theories. As Google explained in its opening brief (Opening Br. at 8-9, 13), Dr. Khatri does not count what he identifies as the accused LPHDR execution units in the accused Google products as *both* an LPHDR execution unit *and* a 32-bit FP multiplier, even though his own report opines that the accused LPHDR execution unit is adapted to perform 32-bit floating-point multiplication—and thus would count as a 32-bit FP multiplier under Singular’s Federal Circuit claim interpretation. Because the accused LPHDR execution units are *also* 32-bit FP multipliers under Singular’s appellate claim construction position, the limitation in the Exceeds Claims requiring that there be at least 100 more LPHDR execution units than 32-bit FP multipliers cannot be met.

Singular tries to re-write Dr. Khatri’s infringement report in its opposition brief so as to make it seem consistent with Singular’s appellate position, but Singular’s re-write fails.

First, Singular says “Dr. Khatri did not opine that the accused LPHDR execution unit is adapted to perform 32-bit floating point multiplication and, thus, would count as a 32-bit multiplier.” Opp. at 4. Of course he did not explicitly concede non-infringement, and Google never said he did. Rather, Google explained that the various circuits that Dr. Khatri has lumped together as the alleged LPHDR execution unit within the accused products perform what Dr. Khatri calls an “LPHDR *multiplication* operation” on floating point numbers *that are at least 32-bits wide*. Opening Br. at 8-9.

For example, although Singular now says in its opposition brief that the accused LPHDR execution unit does not perform multiplication on 32-bit floating-point numbers, Dr. Khatri said the opposite in this infringement report:

Collectively, the circuits that execute this LPHDR *multiplication* operation satisfy the “LPHDR execution unit” requirement of claim 7. Specifically, the LPHDR EU comprises the precision-reducer circuits that convert *each of the FP32 input signals* into low-precision BF16 signals, the memory circuits that temporarily store the BF16 signals, and the BF16 multiplication circuit that multiplies the BF16 signals and produces an output signal.

Dkt. No. 455-9 (Exhibit I) at [0140]; *see also id.* at [0126] (“These ‘reduced precision multipliers’ *receive FP32 input signals as inputs.*”); [0128]-[0129] (explaining that the accused LPHDR execution unit performs *an LPHDR multiplication operation* in two stages and that “[i]n the first stage, the *two FP32 input signals* are sent to separate precision-reducer circuits...”); [0142] (“Together, these components execute the operation of LPHDR *multiplication*...this operation is executed by converting *two FP32 input signals* to low precision BF16 signals, and then multiplying these two BF16 signals to produce an output signal.”); [0151] (“the *FP32 inputs to the LPHDR multiplication operation*”). As these passages make clear, Dr. Khatri’s infringement theory relies on circuits within the TPUs performing what Dr. Khatri calls a single “LPHDR *multiplication* operation” on *FP32* numbers, *i.e.*, performing multiplication on 32-bit-wide floating-point numbers.

Despite Google explicitly citing these various passages in Dr. Khatri’s report and explaining how this infringement theory is inconsistent with Singular’s appellate position, Singular offered no direct response. Opening Br. 8-9, 13. Instead, Singular merely reproduces three paragraphs from Dr. Khatri where he baldly concludes that there are (a) 8,200 of the claimed 32-

bit FP multipliers in the TPUs and (b) 131,072 (or 262,144)⁴ of the claimed LPHDR execution units in the TPUs. Opp. at 5. But this only highlights the problem; Dr. Khatri’s “math” simply does not add up when Singular’s appellate claim construction position is applied.

If, as Singular contends on appeal, a claimed 32-bit FP multiplier is any execution unit that performs multiplication on 32-bit floating-point numbers, then each of the 131,072 (or 262,144) LPHDR execution units Dr. Khatri identified—and which he says takes 32-bit floating-point numbers as inputs for a multiplication operation—would also count as a 32-bit FP multiplier. There would thus be 139,272 32-bit FP multipliers in TPUv2, *i.e.*, the original 8,200 32-bit FP multipliers he identifies plus the 131,072 32-bit FP multipliers that he says are LPHDR execution units but which are also 32-bit FP multipliers under Singular’s appellate position. For TPUv3, the total would be 270,344 (8,200 + 262,144). Counted this way, there would be at least 8,200 *more* 32-bit FP multipliers in the accused products than LPHDR execution units (139,272 > 131,072 for TPUv2 and 270,344 > 262,144). Google thus cannot possibly infringe the Exceeds Claims which require *more*, not less, LPHDR execution units than 32-bit FP multipliers.

Second, Singular leaves entirely unrebutted a separate reason for why Google does not infringe under the inconsistent claim construction Singular is pursuing at the Federal Circuit. Specifically, Singular does not address Google’s separate argument that, because of a [REDACTED] [REDACTED] included in the TPUs that Dr. Khatri does not address in his infringement report, the claimed LPHDR execution units would also be the claimed 32-bit FP multipliers, applying the claim construction that Singular and Dr. Khatri urged in the IPR and that Singular is now pursuing on appeal.⁵ Opening Br. 9-10, 13.

⁴ The difference in numbers is because TPUv3 has twice as many MXUs per core.

⁵ Singular has long been on notice of Google’s position that the TPU’s [REDACTED] will result in non-infringement under Singular’s claim construction position that it advanced first in

Instead of directly addressing Google's argument, Singular reproduces a footnote from Dr. Khatri's report that references [REDACTED]. Although unclear, Singular appears to suggest that this was Dr. Khatri's attempt to account for the [REDACTED] that Google identified. Opening Br 9-10, 13. The footnote, however, has no relation to the [REDACTED]

[REDACTED].⁶ See Walker Rep. (Dkt. No. 455-10) at ¶ 261; see also Dkt. No. 360 at 14-15 (explaining relevant functionality and noting Singular's awareness of this functionality at the deposition of Google's 30(b)(6) witness Dr. Norman Jouppi's deposition).

D. Google's non-infringement defense is new because it will only become applicable if the Federal Circuit adopts Singular's claim construction position.

Singular argues that because Google's expert identified the inconsistency between Singular's infringement allegations in this Court and its claim construction position at the Federal Circuit, then Google can raise its non-infringement defense at trial and it can be "resolved by the jury." Opp. at 4. But the defense Google has identified does not exist unless and until the Federal Circuit adopts Singular's appellate interpretation of the phrase "adapted to execute at least the

the IPR and re-advances now on appeal. Google argued in its motion to amend its non-infringement contentions that deposition testimony Dr. Khatri provided in the IPR would admit non-infringement based on the [REDACTED] under Singular's appellate claim construction position. See Dkt. No. 360 at 14-15 ("Thus, if Singular were to prevail on its PTAB claim construction in the Federal Circuit, Dr. Khatri's own statement on behalf of Singular would give rise to a non-infringement argument for Google."). In granting Google's motion to amend, the Court reserved judgment on whether Singular's appellate claim construction position was inconsistent with its district court infringement theory. Dkt. No. 375 at 3

⁶ In contrast, Singular's cited footnote refers to [REDACTED] Opp. at 4. Nowhere in this footnote does Dr. Khatri explain the relevance of this [REDACTED], nor does he opine that this [REDACTED] does not produce the same result as 32-bit floating-point multiplication, or even that this mode is actually implemented in the accused devices themselves, [REDACTED].

operation of multiplication on floating point numbers that are at least 32 bits wide,” an interpretation that would be distinct from Singular’s interpretation of that phrase before this Court.

As Google has explained to the Federal Circuit, Singular’s claim construction argument is contrary to the intrinsic evidence and should not be adopted. Dkt. No. 455-4 at 31-35. Google will therefore advance before the jury its several other dispositive non-infringement defenses, none of which depends on Singular’s appellate claim construction position. Forcing Google to simultaneously present a *contingent* non-infringement defense based on *Singular*’s appellate claim construction position is not only unfairly prejudicial to Google, it runs the risk of confusing the jury. Indeed, it would be tantamount to asking the jury for an advisory opinion.

Should the Federal Circuit disagree with Google and adopt Singular’s interpretation of the claims, then that construction will be binding on the parties (and this Court) and the dispositive infringement defense Google has outlined in its briefing will become applicable. Google’s non-infringement defense would thus become “new” upon the Federal Circuit adopting Singular’s claim construction argument. Continuing the trial so that the Court and the parties know whether Google has this potential non-infringement defense available to it prior to trial is the only practical course of action that does not involve the potential for a retrial only weeks or months after the currently scheduled trial is completed.

E. The potential for the Federal Circuit to reverse the PTAB’s decisions entirely is not speculative.

Singular says that “the best Google can hope for” with its pending appeal “is a remand.” Opp. at 6. This is irrelevant and incorrect. It is irrelevant because Google’s request for a continuance is based on the potential that *Singular* wins at the Federal Circuit and convinces the Federal Circuit to adopt Singular’s claim construction position. It is also incorrect because if the Federal Circuit reversed the Board’s motivation-to-combine findings, then there would be no need

for remand as Singular has never disputed that at least one of Google’s combinations before the Board renders the Exceeds Claims obvious under either party’s construction of those claims. Dkt. No. 455-3 (Exhibit C) at 61 n.5; Dkt. No. 455-4 (Exhibit D) at 31.⁷

III. CONCLUSION

A short continuance of the upcoming trial is appropriate so that the Court and the parties will know whether the Federal Circuit will adopt Singular’s claim construction of the phrase “adapted to execute at least the operation of multiplication on floating point numbers that are at least 32 bits wide,” a construction that provides Google additional clear non-infringement defenses. Absent such a continuance, the risk of a retrial and the potential wasted resources of such a retrial outweigh any prejudice Singular suffers from a short continuance.

Respectfully submitted,

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⁷ The Federal Circuit could remand the case for the Board to address Singular’s evidence of secondary considerations, but Google explained why such a remand was unnecessary. Dkt. No. 455-4 (Exhibit D) at 26-31.

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